BIOLOGY LAB

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cell Membranes

Pre-Lab to be completed before coming to class:

1. Define osmosis and diffusion.
2. What is the main difference between osmosis and diffusion?
3. What is a hypotonic solution?
4. What is a hypertonic solution?
5. Molecules tend to move from areas of \_\_\_\_\_\_\_\_\_\_\_\_ concentration to areas of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ concentration. (Fill in the blanks!)

View the video clip in class and answer the following questions:

1. What gives a red blood cell its shape?
2. What happened to the red blood cell in the hypertonic solution? Why?
3. What would happen if we placed a cell in a hypotonic solution? Why?

In Lab:

Problem: Is the cell membrane a selective barrier?

Hypothesis:

Materials: Microscope, Microscope slide, Cover slip, Yeast, Methylene blue stain, Water, Hot Plate, Pan, Eye droppers, 2 500mL beakers, stirring rods.

Procedure:

1. Place a packet of dry active yeast in a beaker. Add 400mL of water and stir.
2. Place another packet of yeast in a pan with 400mL of water.
3. Boil the yeast/water mixture in the pan for ten minutes and let cool.
4. Prepare a slide of the yeast in the warm water by placing a drop of the solution on a clean slide.
5. Place a drop of Methylene blue onto the drop of yeast solution.
6. Carefully cover it with your cover slip, remembering to drop it at an angle.
7. Look at the slide under the microscope, remembering to start focusing with low power.
8. Find a good example of the yeast under high power and draw what you see in the data below.
9. Repeat steps 4-8 for the yeast that has been boiled.

Data:

Yeast Cells in

Warm Water

Boiled Yeast

Water Mixture

Additional notes:

Conclusion:

1. Explain how boiling affected the yeast cells.

1. Why does the color of the two groups of cells differ? (Remember to consider the role of the plasma membrane.)

1. Are the plasma membranes selective barriers? Explain.
2. How do the yeast cells differ from red blood cells?